

TOBB UNIVERSITY OF ECONOMICS AND TECHNOLOGY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES

**A NEW RESEARCH AREA FOR INTRICATE LANDSCAPE OF CITIES:
PARADISCIPLINARITY**



MASTER OF ARCHITECTURE

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AUGUST 2017

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TEZ BİLDİRİMİ

Tez içindeki bütün bilgilerin etik davranış ve akademik kurallar çerçevesinde elde edilerek sunulduğunu, alıntı yapılan kaynaklara eksiksiz atıf yapıldığını, referansların tam olarak belirtildiğini ve ayrıca bu tezin TOBB ETÜ Fen Bilimleri Enstitüsü tez yazım kurallarına uygun olarak hazırlandığını bildiririm.

Beliz ARPAK

ABSTRACT

Master of Architecture

A NEW RESEARCH AREA FOR INTRICATE LANDSCAPE OF CITIES:

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Institute of Natural and Applied Sciences
Department of Architecture

Supervisor: Prof. Dr. T. Nur ÇAĞLAR

Date: August 2017

Nowadays, cities and disciplines become intricate. The concept of intricacy*, includes the model of connections of different elements that combined without resolving within each other. While the elements protect their main focuses, they should adopt and transform due to the relations which have been built. Each and every relation within architectural/urban studies should be evaluated as a skein without separation. When the architectural/urban studies become intricate, the concepts and comprehensions become insufficient. This insufficiency, within this research, examined through three headings: city, discipline and technological developments. Through the examination of the relations, Michel Faucault's four similitudes which are convenientia, aemulatio, analogy and sympathies, have been used in order to comprehend this skein. Afterwards, the historical process has been discussed under the relative periods that include disciplinary relations. They are Antiquity, Renaissance, Modernity and Post-Modernity. As a part of disciplinary relations, the separation of design disciplines during Modernity caused several problems such as becoming intricate, impossible to comprehend and started to create its own concepts such as in Post-Modernity. Within this research, today's conditions and concepts such as inter-, multi-, cross-, trans-disciplinarity are insufficient while

understanding the knowledge within architectural/urban studies, paradisciplinary will be discussed as a new approach. Due to the examination of the concepts mentioned above related with the disciplinarity, there is a tendency towards one individual can manage all with the help of technological developments and the easy accessibility of the knowledge. Last but not least, the intellectual position of professionals required looking through different aspects, relating concepts over and over again and re-evaluating the definitions of professions.

Keywords: Paradisciplinary, Discipline, Intricacy, Architectural and urban studies, Design, Architecture, Urban design



ÖZET

Yüksek Lisans Tezi

KENTLERİN GRİFT PEYZAJI ÜZERİNE YENİ BİR ARAŞTIRMA ALANI OLARAK PARADİSİPLİNERLİK

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TOBB Ekonomi ve Teknoloji Üniversitesi
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Danışman: Prof. Dr. T. Nur ÇAĞLAR

Tarih: Ağustos 2017

Günümüz kentleri ve disiplinleri zaman geçtikçe “grift” bir yapıya sahip olmaya başladı. “Grift” olma durumu, birbiri içinde çözünmeden ancak iç içe geçerek varlığını sürdüren bir ilişkiler modelidir. Kendi odak noktalarını belirli bir seviyeye kadar korumalarına rağmen, kurmak zorunda kaldığı ilişkilerle birlikte değişim ve dönüşüme uğramaktadır. Mimarlık/kent çalışmaları “grift” bir hal almaya başladıktan sonra eskiden bildiğimiz ve kullandığımız kavramlar ve okumalar yetersiz kaldı. Bu yetersizlik üzerine önce “grift” olma durumu, kentler, disiplinler ve teknolojik gelişmeler başlıkları altında detaylı bir şekilde incelendi. Daha sonra da tarihsel süreç, disiplinler üzerinden değişime uğrayan dönemler aracılığıyla değerlendirildi. Bu dönemler, Antikite, Rönesans, Modern ve Modern sonrası olmak üzere dört başlığa ayrıldı. Modern dönemde birbirinden ayrılan tasarım disiplinleri “grift” bir hal almaya başladıktan sonra, Antik dönemdeki gibi bir kişinin her şeyi yaptığı zamana geri dönme eğilimi gösterdi. Bu nedenle, profesyonellerin entelektüel konuları birçok farklı açıdan bakmayı, kavramsal arası ilişkileri yeniden kurmayı, “grift” bir hal almış meslek tanımlarını yeniden anlamlandırmayı gerekli kıldı. Bu araştırmada, yıllar boyunca süregelen, mimarlık/kent tartışmalarının yanı sıra, yenilikçi ve bütüne odaklanan bir yaklaşım olarak paradisiplinerlik incelendi. Bu

inceleme, tasarımcıların entelektüel pozisyonlarını yeniden oluşturmayı, deęiřtirip, dönüřtürmeyi, gemiři inceleyip yeniden yorumlamayı tartıřtı. Teknolojik geliřmelerde tek bir insanın her řeyi yapabildięi dönemin yeniden mümkün olabileceęini ortaya koydu.

Anahtar Kelimeler: Disiplin, Paradisiplinerlik, Mimarlık ve kent alıřmaları, Grift, Kent



ACKNOWLEDGEMENTS

Foremost, I would like to express my deepest gratitude for my supervisor, Prof. Dr. T. Nur Çağlar for her valuable guidance, advice, criticism and insight during the thesis study. I would also like to thank to jury members, Asst. Prof. Dr. Derin İNAN, Asst. Prof. Dr. Pelin Gürol ÖNGÖREN , Asst. Prof. Dr. Aktan Acar and Prof. Dr. Ertuğrul Rufayi TURAN for their comments and valuable evaluations in the critics of the final jury.

I would also like to thank Carrie Principe for her valuable contribution especially at the final period of writing down this thesis.

Finally, I would like to express my gratefulness to my parents Prof. Dr. Mehmet Nejat ARPAK and Dr. Füsün ARPAK and my brother Dr. Bertan ARPAK and my sister in law Sinem ARPAK and my precious, Ekrem Ozan ÖZKAYA for their endless patience and support during the realization process of my thesis and during all my lifetime.

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1. INTRODUCTION: INTRICATE WORLD OF CITIES AND DESIGN DISCIPLINES

“City is a fabric of strong elements and neutral elements” (Barthes, 2014, 144).

Nowadays, either considering the cities or considering the architecture on their own is impossible. In terms of intricacy, it is a scene which is smooth and heterogeneous rather than a homogeneous mixture. This similarity is also in between architectural and urban studies because they did not lose their own identities but they have to use the connection of networks at some point in order to define the intricacy in between them. Our environments can be considered as the most intricate landscapes of the postmodern city that are designed mostly consciously but often perceived unconsciously in terms of materiality, images and representations. (Sahr,2016, 88). On the other hand, in terms of professional and academic statements, they also have an intricate relation that involves the knowledge of old city centers, design methods and styles, besides the new technological developments (Sahr, 2016,88). Furthermore, there is an intricacy in between “the historical dynamics of urbanization of nature and the transformations in ecological imaginaries” in which the urban space consisting of both nature and human artifacts, creates a series of conceptual complexities that can be considered as intricacy (Gandy,2006, 63). This research defines the situation of architectural/urban studies with the concept of intricacy because even all the design fields protect their focuses, however it is impossible to define one without another. “All contents of art within the same era affect each other so they are conditioned by the same impacts” (Sartre,2016, 13). So, it is impossible to distinguish painting from architecture, architecture from its landscape, the landscape from sculpture or even literature and philosophy.

1.1 State of Cities and Design Disciplines

Throughout history, people have made designs in order to meet their vital necessities and to increase their quality of life. As time passes, this process of design has its own difficulties and failures. In order to examine these failures and hidden possibilities of design, the problems should be discussed. Fundamentally, the blurriness among the design related disciplines has made analyzing and comprehending the intricate structures of the city increasingly difficult day by day. To further describe the intricacy of this issue, “All limits and boundaries ... become blurred in a thick almost palpable substance that has substituted itself almost imperceptibly” (Vidler, 2001, 2). This blurriness among all design fields creates several problems for the designer to manage. Architectural/urban studies are a combination of multiple, complex and intricate systems that evolve and interact in time. Order and identity of these systems emerge from differential variation and mutation. So, the city is a dynamic structure that should be considered as it is because “the ultimate and one way relation of cause and effect gives its place to the system of power that mutually affect each other, a set of events and a dynamic structure” (Eco,2016, 84) and this is the quality that makes the city an intricate landscape which is shown in Figure 1.1. as an illustration.



Figure 1.1: The illustration of intricacy within city (Gabriel,2016).

The urban space consist both nature and human artifacts that creates a series of conceptual complexities. The interactions in between pedestrian ways, public transportation and roads in other words accessibility, the building typology and the number of stores, the identified and unidentified open spaces creates an intricacy which makes nearly impossible to comprehend. So, every single work should be examined as unique because while looking the elements of urban space, it is impossible to understand architect or landscape architect or urban planner or an engineer made the works shown in Figure 1.2 and Figure 1.3.



Figure 1.2: Olympic Sculpture Park, Seattle and Parc de la Vilette, Paris



Figure 1.3: Highline Park, New York City and Lusitania Bridge, Merida

Every single work of design should be examined as a skein which should not tried to be separated but should be considered as an unique object.

“The unique object, defined by its final position and hence creating the illusion that it embodies a particular goal or an end. This is all well and good but it shows us how it is quantity that impels towards quality and how the value thus concentrated on this simple signifier is in fact indistinguishable from the value that infuses the whole chain of intermediate signifiers of the paradigm” (Baudrillard, 1996, 92).

In the lead of this perspective, while examining the examples of design above, it is impossible to define several facts: Whose job to build a bridge: an engineer or an architect or an urban planner? Whose job to build a park having such architectural elements inside: an architect or landscape architect or an urban planner?

Due to these questions, there is confusion in design disciplines and blurriness in between these disciplines have been emerged. The design disciplines which are architecture, landscape architecture, urban planning, industrial design, interior design and so on started to lose their boundaries. The blurriness in between the job descriptions of these fields became impossible to comprehend the changing circumstances. In terms of disciplinarity, even all the design fields protects their focuses, it is impossible to identify and consider one of the design disciplines without another, therefore they should be dealt as a whole. While dealing with the disciplines as a whole it is important to understand the intellectual position of the designer. While building a character as a designer it is important to consider the changing circumstances. As a result the designer’s main concern should firstly be designing his or her own identity. If being a designer is dealing with a skein, then the intellectual position of a designer determines how he or she evaluates the relations within this skein. The reason why the intellectual position of a designer changes within each and every era depends on the adaptation process to the changing circumstances.

1.2 Aim of the Thesis

Throughout history, disciplinary relations and cities have been evaluated through their accessibilities, legibility, functionality, relativity and so on. These evaluations started to become inadequate. In terms of disciplinary relations, designers have confusion due to the intellectual positions and what they can and cannot do related with their fields of proficiency. The blurriness in between design disciplines also

caused an intricacy in between the academic world of design disciplines and created a change towards multi-focal disciplinarity. In terms of cities, the inadequacy of job descriptions creates poorly designed environments. While distinguishing the open spaces from the enclosed ones, the highways from the streets, the public spaces from the private ones and the low rise buildings from the high rise ones. Therefore it is evident that the existing terminology within architectural/urban studies become insufficient. The relation in between disciplinary world and the cities is inseparable because they affect each other.

The problem of cities and disciplinary relations listed within this research is due to the intellectual position of the designer. First problem of today's world is the blurriness of how many disciplines contributes to the built environment, how they contribute and what should be done in order to prevent the complexity within the disciplinary borders. The blurred edges of professions should be considered over and over again. Furthermore, comprehending the intricate cities becomes impossible with the existing terminologies, so the perspective towards the cities should be changed. Each work should be examined as unique and the terminology can change accordingly with this uniqueness.

The objective of this research is to understand and re-build the intellectual position of the designer by examining the past, present and future of the perspectives towards disciplines and the terminology lies behind them. Each era, has its own rules, perceptions, separations and logic towards disciplines due to the circumstances. Moreover, another objective of this thesis is to generate a new way of thinking through paradisciplinarity which can also be a projection for future. Lastly, the research aims to propose a broader way of looking the design disciplines and education in order to comprehend the potential within them.

1.3 Structure of the Thesis

Structure of the thesis is based on the time concept of Deleuze in order to define a path for starting the examination of the intellectual position of the designer and our cities and designs is continuity in time. The innovations should interfere the timeline not as a beginning or an ending. So, it is essential first to understand the conditions of today then how it become like this by examining the past and how it will be in the

future. The structure of the thesis is also based on the definitions of intricacy and paradisciplinarity.

'Intricacy' is a model of connections which is small in scale, however it is a combination of different elements that try to maintain their identities when they intertwine, yet their mergence creates an overlap that is hard to define. (Lynn,2004,9). This term within this research will be used for all the design fields referring to their combinations instead of using 'intricacy'.in solely an architectural context. The city will be defined as the intricacy of landscape. Intricacy is a process of transformation and mutation that architectural/urban studies obtain design fields identities through. Within this context their regulation and probability depends on the organization of the intricate connections. According to Rowe and Koetter, "objects and episodes are obtrusively important and while they retain the overtones of their source and origin, they gain also a wholly new impact from their changed context... a way of giving integrity to a jumble of pluralist references" (Nesbitt,1996, 54).

Paradisciplinarity means, "unlike inter-, multi-, cross- and transdisciplinary collaborations, which define various types of interactions among a group of individuals working together on a common project. Paradisciplinarity applies to a single individual practicing two disciplines at the same time"(Lapointe, 2012, 1). In order to describe paradisciplinarity, two conditions should be fulfilled. One of them is the concept of parallelism in which two disciplines are known by one individual at the same time and the other one is symmetry which gives the same importance to the both of the disciplines equally (Lapointe, 2012, 1).

The argument of the thesis is based on comprehending the problems of the intricate cities and design disciplines. Is it possible to maintain all the design possibilities within yourself? Is it possible to consider disciplines as a skein and comprehend as it is?

2. INTRICACY

The term intricacy means “having many interrelated parts or facets: entangled or involved” and “complex, complicated, hard to understand, work or make” (Dictionary). In other words, it is a model of networks that interlaced however maintains their main focuses but started to transform and mutate likewise the design disciplines and the cities. Within this research the intricacy will be examined under three headings which are city, design disciplines and technological developments.

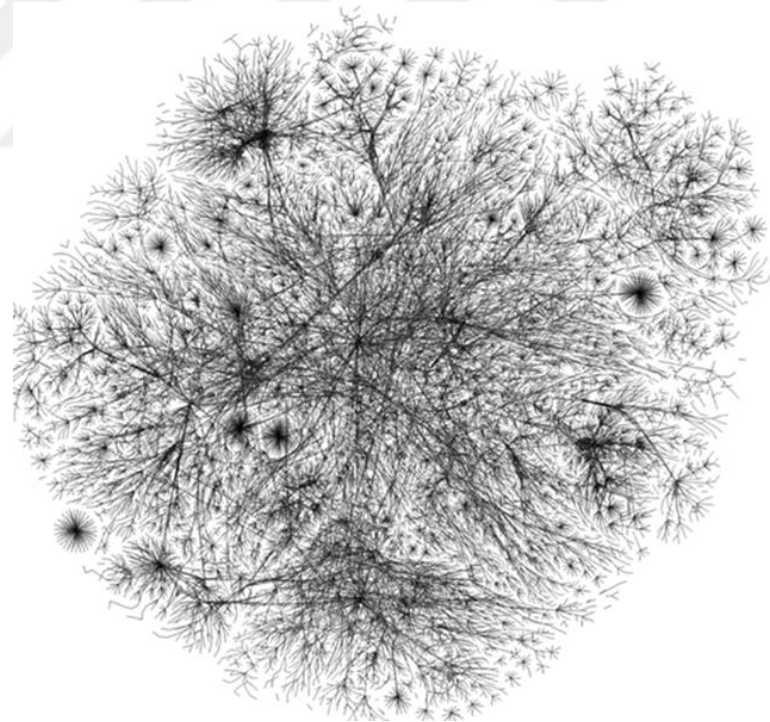


Figure 2.1: A model for intricacy (Kullmann,2016).

2.1 City

2.1.1. Figure/ground relations

The first heading is the relationship between figure and ground that nowadays lost its demarcation in terms of comprehensibility. “Reconceptualization of the earth as light opens the way for different gravities and therefore a multiplicity of grounds” (Lynn, 2004, 100). If one considers that architecture is composed of vertical structures and horizontal grounds then he/she can also imagine that the multiplication of alignments and grounds will create a multiplication of ground forms which makes it even harder to read the city with the old figure ground relations. One of the most suitable examples of the intricacy within the figure/ground relations is the Hong Kong Peak Club designed by Zaha Hadid. Her suggestions for the designated area had two possibilities: the first was a building considered as a whole with its own gravitational forces. The second one was that the regulations in between planetary masses should be created with the particularities and adjacencies of the elements rather than considering the relation of each of the elements as a single uniform gravitational force of the Earth (Lynn, 2004, 101). On the other hand, there were two strategies within the project; one part attempted to fulfill the anti-gravity while the other tried to accomplish the necessities of the architect’s alignment on the ground. These two strategies formed the concept of “planetary urbanism” which suggests a network of intricate relationships between free elements and different gravitational characteristics (Lynn, 2004, 101). The project is “intricately grounded as it reconfigures the surface on which it is embedded as a series of interrelated plates” (Lynn, 2004, 102). In other words, it is beyond the simple masses that are perpendicular to the ground and is basically a combination of different types of elements that overlap each other. This situation must be seen as a condition of gravity different than the usual ones. This causes the relationship in between figure and ground to become multiple and loose. Furthermore, the relation of this building with its surrounding is also another example which makes cities impossible to understand the interaction between the past and the future, the old and the new, and lastly the high rise and the low rise.



Figure 2.2: Hong Kong Peak Club Zaha Hadid

Another example which highlights blurriness in between figure and ground is the Mexico City Airport by Norman Foster that is built on a monumental scale and can be referred to as mega structure. This project reveals an environmental skin that is nearly impossible to identify between figure and ground, however it is all enclosed with a lightweight grid shell, embracing walls and roof in a single, floating form, evocative of flight which fits into the environment smoothly.



Figure 2.3: Mexico City Airport (Foster and Partners,2014).

2.1.2 Dynamism

Another heading is the dynamism that today's cities are faced with. With the gravitational lightness of structural systems and nearly invisible building materials, the organization of architectural and urban systems started to change. "Dynamic structural principles of walking, flying, floating, skimming, and swimming are not grounded by any single environment but are relational structures that exist between bodies and environments" (Lynn, 2004, 101). While the figures become more and more lighter, the flow or floatation within the city starts to increase related to the equalization of the mass and density. Consequently, new dynamics and new movements within city and within the buildings itself occur which makes it harder to understand the intricate cities. The dynamism of a city is also related to the interactions in between pedestrian ways, public transportation and roads. In other words accessibility, the building typology and the number of stores, the identified and unidentified open spaces such as squares, sidewalks, parks and/or empty spaces creates a loss in connections and the interactions in between the new and the old historic parts of a city. This relation can be examined through the concept of lost space which creates a serious gap within the city.

The lost space is an urban theory that includes place theory which developed because "the qualities which traditionally distinguished human settlements have been corrupted or have got irreparably lost" (Meagher, 2008, 150). According to Schulz, "This implies that a distinct figure-ground relationship no more exists, the continuity of landscape is interrupted and the buildings do not form clusters or groups" (Meagher, 2008, 150) that relates the lost space to the loss of dynamism within the city. There are five factors which block the dynamism and cause lost space. The first of the factors is the daily increase on car dependency within cities , the second one involves modern architecture that has tendency to create vacant spaces within the city, the third one is the policy of zoning and land-use that makes division within cities, then the other one is the decrease of the roles of contemporary, public and private organizations within the public spaces in the cities, and the last one is the abandoned areas, terminals and barracks within the core of the city (Memarian, Niazkar, 2014, 318). The most common problem of today's cities is that "the spaces between buildings are rarely designed" (Trancik, 1986, 8). Due to the strict job

descriptions of design fields within the Modern Era, people make their own design without linking the designated zone to the pedestrian ways or the cultural background of the city or the continuity of the city form.

In order to understand and figure out the problem of lost spaces, first the differences between space and place should be made clear. In an abstract sense, space is a bounded, purposeful void with the potential of physically linking things. It only becomes place when it is given a contextual meaning derived from cultural or regional context. The basic aim of the designer should be creating places through a synthesis of the components of the total environment, including the social. It is only possible by having the knowledge about everything related with design and city that may create consistent environments and prevent the activity of the city to become disconnected.



Figure 2.4: Aerial view of Sweden, lost space, 1975 (Trancik, 1986).

The figure above is an example of a lost space in the 20th century European developments. In the image, the Buildings are isolated and the spaces in between them are formless and vast. (Trancik, 1986, x). It is important to understand the city,

the culture of the city, the historical background, and the needs of citizens in order to design and create a link through the isolated buildings, and unidentified spaces without functions. While looking through every and each theory of urban design, it is obvious that there is a lack of consistency which creates gaps in between figure/ground, the dynamism within the city and it is unclear who will design it. Nowadays, the situation of the cities is the same. Although they are more vacant, the connection in between zones and social public open areas is missing. To solve the problem, designers should host the knowledge of every discipline.

“A policy of the consistency in between political, social and conceptual parts and to ensure unity is sufficient for a unit to emerge as an indivisible whole ... So it is useless to divide pieces from a whole. Entities hosting the environment and the way, which is visible and surrounds them is only understandable with the objects shows themselves to the unifying logos”
(Cauquelin,2016, 25).

On the other hand, when the dynamism within a city is discussed, one of the most important concepts is the morphology of the city because “an intricate choreography of energy and material that determines the morphology of living forms, their relations to each other and which derives the self- organization of populations and ecologic systems”(Hensel and Menges, 2008, 27). The city can be exemplified as a living organism which maintains itself through the exchange of energy and materials and in return it gives out the modified energy and materials that is based on the functioning, accessibility and dynamism through its design. As a potential which the morphology studies create “the organization and morphology of energy systems of the natural world provide a set of models for what will become the new metabolic morphologies of future buildings and ultimately of cities” that will affect the dynamism within the city (Hensel and Menges, 2008, 27). In terms of a progression in design, “the process of design is only a secondary and subsequent act whose purpose is to reconcile the consequences of the initial intervention collision and negotiation” (Nesbitt, 1996, 49) which makes it possible to create a stable set of criteria by investigating the metabolic rate of a building for revising the energy of culture, climate and economy for future buildings through inspiring from the metabolisms of living organisms which functions well. “The study of natural metabolisms commences with their architecture, the spatial and material organization

of a system for capturing, transforming and transporting energy” (Hensel and Menges, 2008, 28). In recent history, there have been several changes due to culture, climate and economics that also created changes in cultural and physical ecology which in turn affected and continues to affect architecture lives. Through this change, there has been a cultural fascination within the urban fluidity, dynamics, networks and new typologies.

“In architecture, our behavior, the sense of occupancy, orientation, the sense of space and the distances to be observed has almost a direct effect on the body conscious and the ability to move in a certain area. Within the modern city, roads and highways, bridges and streets, squares and open spaces change our habits, sometimes forces the citizens to walk or forbids walking” (Cauquelin, 2016, 53).

The perception of a citizen within an urban life that is based on the accessibility within separated areas started to change in relation to dynamism.

“The experience of being in spaces that flow one into another, where differentiation between spaces is achieved less by rigid walls than by extended thresholds of graduated topographical and phenomenological character and in which connectivity and integration are enhanced, is central to contemporary existence” (Hensel and Menges, 2008, 33).

Beyond the context of the city each and every individual element of the city should also be considered carefully in order not to decrease the flow within the city. It is obvious that architecture is a material practice which shapes our built environment and creates the conditions citizens live in. It also creates a relation in between formalization and materialization related with the discipline of architecture that creates a great potential which has an exciting performative and beautiful settings for human inhabitation. (Hensel and Menges, 2008, 38). Another point of view related with the dynamism in the city is in the book by Jane Jacobs “The Death and Life of Great American Cities” in which she purports that a city street should achieve three different qualities to handle visitors properly. First, she believes there should be a clear identification of public and private space, however Jacobs acknowledges that it is impossible to create boundaries within suburban areas and projects. Afterwards, in terms of safety of all contributors, participants should be oriented to the street and

continue along that designated path. Lastly, it is important to keep the street updated, crowded and attractive (Jacobs, 1992, 35). In light of these ideal aspects of a city street, the same criteria can be applied to the city itself as well as the related disciplines. As a result, the city should be organized well but also should include the citizens within and the intricate boundaries should be reconsidered in terms of dynamism, attractiveness and usage both in the city and the parties that are involved, such as design disciplines.

2.2. Design Disciplines

The relation in between design disciplines also can be identified with intricacy because all the design fields lost their boundaries and the argument that the job descriptions are becoming blurred can be described as “a symptom of shifts among the spatial design disciplines” (Kullmann, 2016, 31). There is a recent uncertainty which has been formed by “inter-disciplinary anxiety” that results from the blurriness in between the spatial design disciplines which includes landscape architecture, architecture, urban design, urban planning and landscape urbanism. As a result, this creates an intricacy (Kullman, 2016, 32). On the other hand, this intricacy can be defined as “an analogous to the moment in which individual elements begin to lose their clarity, the moment in which an object merges its field” (Holl, 2000, 56).

As a result of the strict descriptions of the design fields, it creates a necessity towards working together and passing the knowledge to each other. For many years, researchers have called these situations cross-, multi-, inter-, or trans- disciplinary. However, nowadays the necessity of working together gives its place to working as individuals with the lead of developed technology. “Establishing broader understanding of disciplinary interactions from a scholarly perspective provides a valuable context with which to understand past patterns and project future directions. In light of these design discipline explanations, it is impossible to understand today’s intricate world of design disciplines with the existing terminology so, within this research it will be paradisciplinary.

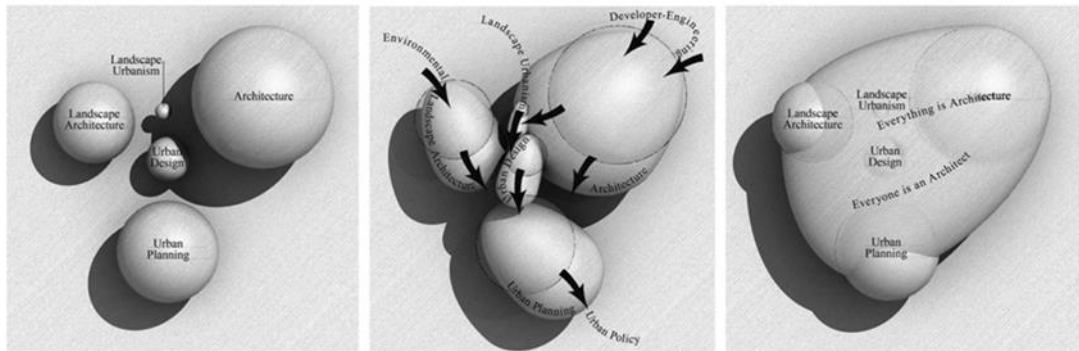


Figure 2.5: The process of convergence of design disciplines (Kullmann, 2016).

Even it seems that the job descriptions of these fields are exact and listed above, nowadays their borders started to become jumbled same with the cities of today, the transportations, the necessities, the life within them and the organization started to collapse accordingly with the problems of failed designs. These designs are failing because of the lack of the understanding in modern cities and citizen's needs and designers are still trying to read the problems with the old, well known ideas but the concepts need to change in order to adopt the perspective and conditions of today.

2.2.1 Inter-related Disciplines

The intricacy of design disciplines can be examined with the egg city concept which shows the evolution of the relationship in between each design discipline and on the other hand, it can also be used for understanding the city itself. Due to the changes in the morphologies of the cities, architects and designers have been attempting to understand the way cities were and how they will be. As a result, they have come up with several concepts. In the United States, there are three types of cities; a machine city which was evolved from a dense city center that has regional divisions between the dense center and suburban with t railways. It is a bipolar structure that has a separation industry from farmland, rich from poor and so on. The second type of city is the industrial city that replaces the machine city. Lastly, the edge city which has been created with the innovation of automobiles that has a multi-centered pattern

includes malls, office parks, industrial parks and residential enclaves (Waldheim, 2006, 63). Meanwhile, in Europe, Cedric Price described the morphology of cities with three different types by creating the scheme of the egg city. “Hard boiled” egg symbolizes the city which has fixed-in concentric rings of development within its walls. The second one is the “fried egg” city where the borders expanded by the railway connections created linear space-time corridors out into the landscape. The last one is referred to as the “scrambled egg” city, where everything seems to be distributed in an equal way that created a continuous network of landscape (Waldheim,2006,64).



Figure 2.6: Egg City model by Cedric Price (Oikonet-Cottbus Workshop 2015).

The concept of egg city also describes the changes within the borders of disciplines. “History has drawn fault lines dividing, practice and theory, technique and expression, craftsman and artist, maker and user, modern society suffers from this historical inheritance” (Sennett,2008, 11). First, during modernity while all the design disciplines have their own boundaries like in the “hard boiled” egg afterwards, with the developing technologies and changing cities the borders of disciplines started to become blurred like in the “fried egg” shape. Later on, with the rise of individualism, the borders of design disciplines and other disciplines started to become intricate without any main focuses and restricted borders since the dominant thinking depends on how an individual improves him/herself. Another aspect for the design discipline boundaries is that they are discriminative, however the barriers are permeable which creates an intricacy in between. There are several reasons for the permeability of the boundaries which are listed as:

"epistemological structure and cognitive orientation of a discipline: the borrowing of tools, methods, concepts and theories, the pull of intellectual, social and technological problems away from strictly disciplinary focus, the current complexity of disciplinary research relations with neighboring disciplines, redefinitions of what is considered intrinsic and extrinsic to a discipline" (Klein, 1996, 38).

The permeability of the boundaries is based on that the disciplines have not been isolated from each other which are mostly crossed in order to understand the intricate world of design disciplines and cities in terms of the political and professional. While crossing the boundaries process and the criteria lies within each other, they are not found or given within the historical background but they are made by the designer. According to Bruno Taut, "At this point... there will be no boundaries between the crafts, sculpture and painting, all will be one: Architecture" (Frampton, 1992, 123). Getting knowledge is an ongoing process that breaks the barriers, feeds each other replaces the well-known information and it is an inclusive relationship which leads to a concept of synthesis that can change the written perspectives or creates an opportunity to go way back to the old times when the disciplines of design was not separated (Klein, 1996, 21).

While creating knowledge, people also create concepts that make the understanding of the worlds' conditions easier, which reflects the reality more clearly and has a strong emphasis on the issue which has been discussed. So it is important to understand the definition of conceptualization and learning the way/steps of creating concepts. First of all, conceptualization can be considered as a cognitive science that throughout history people understand and speak a language or languages which leads them to have a tendency towards having an interval 'representation of linguistic knowledge' and allows them to perform this behaviour (Nuyts and Pederson, 1999, 1). In addition to this, a more scientific definition has been made:

“Thus while classical cognitive theories would consider representations to be virtual objects of some type, manipulated by a machinery of producers or rules which are somehow implemented in the human brain, connectionist and parallel distributed processing theories consider representations to be simply the resultant characteristics of particular states of the conceptual system distributed across the neural networks of the brain” (Nuyts and Peterson, 1999, 2).

In other words, according to a model that is called Model a la Fodor “in which conceptual representation at least on the level of higher cognitive processes is considered to be a symbolic system manipulated by a limited set of logical rules” (Nuyts and Peterson, 1999, 2).

Afterwards, the word concept should be examined. Concept is in general one of the things which bounds the truth itself and it is a tool for the progression in science. “Concept brings thoughts together in accordance with truth” (Hegel, 2002, 39). Furthermore, the ideas which we have in mind can be developed and improved with the creation of concepts. It is necessary to create concepts, not thinking onto them and not discovering the transcendences but providing concepts to work within the fields of immanence (Deleuze, 2015, 25). Concepts are also related with the thinking part of design that can be described as:

“Philosophy has to do with ideas and therefore not with what one tends to call mere concepts...The configuration the concept gives itself in its actualisation is the second essential moment of the idea, necessary to cognition of the concept itself, but distinct from the form in which it is only as concept” (Hegel, 2002, 11).

In addition to that, philosophy is based on creating concepts and with these concepts it diminishes ignorance (Deleuze, 2015, 44). Due to the changing and developing world, it is impossible to understand and interpret the concepts emerged before in the same way now. So “Today, it is impossible to argue the codes which are universal and common, they all have to be re interpreted” (Portzompare and Sollers, 2014, 47). Last but not least, there is an emergence of the necessity of creating new concepts which is based on the problems of the world that is changing and developing because of the need of proof and deduction (Hegel, 2002, 12).

By looking at the relation between architectural and urban studies, the creative ideas or so called design ideas should be based on the concepts that can make it easier to understand the design possibilities and the design solutions which are offered by the designer. The older concepts which are created or listed by the world-renowned architects, even the recent ones, with the books Kevin Lynch in the “Image of a City”, by Aldo Rossi in the “City Architecture”, by Rob Krier in the “Urban Space” or by Robert Venturi in “Learning from Las Vegas”, are not enough to understand the conditions of today so the leading architects of today create their own concepts.

“If we accept the issues which are standing open questions, calls and expectations, then we understand when art connects, it has not lost anything. On the contrary, it forces the artist/designer to find a new language and a new way of application because of the necessity caused by the renovations in the field of societal and metaphysics” (Sartre, 2016, 36).

If there is a problem, then the solution lies behind in a concept which both affects the city itself and the innovations in the literature of architecture. Another solution passes through the examination of the history and re-understands or re-models the concepts which have already been mentioned.

“History always establishes a relationship in between a particular now and it’s past... and it is also a well of results which we reach out pull things out” (Berger, 1995, 11). Peter Zumthor explained the re-understanding of the old concepts but never gave up to find the new ones as “We frequently invented what had already been invented and tried our hand at inventing the uninvented” (Zumthor, 2006, 23). In order to invent the non-invented taking ideas from the past and applying them in the present and to the future is “assigning new meanings to old classical concepts and reproducing new concepts” (Deleuze, 2015, 34). Nowadays, design is considered as creating the most suitable, functional, aesthetic, unique thing that “the ideas are not enough for themselves, a design should be connected to one another and need to earn a designation by digressing out on their own” (Deleuze, 2015, 37). These thoughts need to put emphasis on the concept of time. While giving examples, people use the historical references or past experiences because time is always passing. “It is always a little late to talk about time” (Deleuze, 2015, 43). As designers, we should consider several facts related with the zones while designing such as culture, weather

conditions, social status, economy, that are always related to past. So it is important to understand the concept of time.

Time passes due to a differentiation in two ways: one is providing now to past and the other is projecting the past. Time is a variable data that supposed to pass through one way when the time extends to run out the now has passed (Deleuze, 2015, 16). So, as designers, our touch to the zones we are planning to design should reflect both past and future but with the knowledge of now. While time passes inventing new things should interfere the time line but not as a beginning or an ending. Things should start from the middle of in between things” which he was influenced by Hume as in his works he transforms the relations in between concepts to the relations in between ideas and links them to the sequences of connotations which exceed themselves. Relation is an individual thing that comes before premises (Deleuze, 2015, 34). The way of starting from the middle is required for all of the design fields while they are described or used. After using concept of time as a tool for ordering the solutions, first the past should be examined. In terms of design disciplines, initially one individual made all the design on his or her own. Afterwards the fields of design started to split with the emergence of modernism around the 19th century. From there, the creation and theoretical parts of design separated and were considered different career paths. So, all of the design fields started to have their own definitions, descriptions and borders however, nowadays these borders of the disciplines have become blurred.

“Once upon a time, we also thought it is not good enough for community that one man considers the happiness of all and that everyone should participate the building process of housing therefore, started to work together and with groups however, we gave up later on” (Portzamparc and Sollers, 2014, 50).

Meanwhile, these separated design fields started to correlate with each other. Afterwards, the recent ways of looking at disciplines such as multi- disciplinary “juxtapose disciplinary perspectives speaking as separate voices; they are united in inter-disciplinarity, while the term trans-disciplinary is used to coin an overarching and unifying synthesis” (Petrișor, 2013, 44).As a result, there are so many disciplinarity which are mentioned above so everybody found their own way in

needed circumstances to say that the relationship between these disciplines become something different.

This relation between fields are examined in two ways within this research, first, design is a field that can relate itself to many different fields and the second one is about the situation of the relationship of the fields that turned into something intricate and delicate nowadays. At the same time, it very complicated and also fragile, it is very refined but on the other hand, it should be resolved. It will get thinner however it can be broken and turned into something else. So, since a designer should have a position towards the changing world of cities and disciplines, paradisciplinary will be evaluated in order to consider if it is possible that one individual can manage all or not.

“The theoretical disciplines dealing with the human habitat- spatial planning, urbanism, architecture and constructions, but also their applicative sides- territorial and urban planning, architectural and construction design have tight, indissoluble connections making them act as a whole” (Petrişor, 2013, 44).

The research aims to create an awareness towards the problems of today, where they started to occur, what can be done to correct it, could the possibilities of technological developments help to reverse the consequences of working within groups instead of giving all the knowledge to one person. While creating an awareness, the similarities and the relations of the design fields should be examined and discussed.

For explaining the similarities of the design fields and others, this research also evaluates the four similitudes of Foucault that is re-interpreted. The concept of design as a whole includes all the fields of art and architecture and it was used to be under the authority of one person then around nineteenth century, they started to split into other fields in the need of specialization which are designed as architecture, landscape architecture, city planning and industrial design and so on. “Division is a necessity for the relationships to occur, those who are about to be reunited should fall apart first, that is all you need for the functioning of signs and symbols” (Caquelin,2016, 49). It is important to understand the relationship between these nested design fields through Foucault’s four similitudes since it will create data to

improve this research on design. Likewise the similarities of the design fields and the possibility that lies within the jumbled borders can be described by Foucault's view on resemblance that they are "largely guided exegesis and the interpretation of texts; it was resemblance that organized the play of symbols, made possible knowledge of things visible and invisible, and controlled the art of representing them" (Foucault, 2015, 19). In other words, the resemblance played a productive role until the end of the sixteenth century that may give the same results for the possibility of the sameness between design fields same as now.

In order to explain the jumbled fields of design and other professions, Foucault's four similitude can guide us in which one of them or more than one might be fit to explain the para-disciplinary change of the design fields. The first of the similitude is the *convenientia* that can be defined as neighborhood, in other words the place and resemblance are interlaced. According to Foucault, the word *convenient* points out the proximity of places more than similarities. The things which converges or adjacent to each other are close and they touch each other, their junctions interlock and the ending of one becomes the beginning of other (Foucault, 2015, 20). As an example to illustrate the similitude of *convenientia*,

"we see mosses growing on the outsides of shells, plants in the antlers of stags, a sort of grass on the faces of men; and the strange zoophyte, by mingling together the properties that make it similar to the plants as well as to the animals, also juxtaposes them" (Foucault, 2015, 20).

Moreover while defining the word *convenientia*;

"at each point of contact there begins and ends a link that resembles the one before it and the one after it; and from circle to circle, these similitudes continue, holding the extremes apart (God and matter), yet bringing them together in such a way that the will of the Almighty may penetrate into the most unawakened corners" (Foucault, 2015, 21).

This type of similitude is closely related with the design fields because the fields nowadays starts to become engaged and they started to change each other's limitations, their touching points and started to become jumbled.

The second type of similitude is *aemulatio* which was rescued from the concept of place being able to function without motion and that the distance has no significance

at all. It is related with the concept of competition. Things can be replicated with the relation of competition without proximity and touch from one side of the universe to another. In other words competition is the natural duplicity of the things like the union of duplicity. To sum up with Foucault's own words:

“rather as though the spatial collusion the prose of the world of convenientia had been broken, so that the links of the chain, no longer connected, reproduced their circles at a distance from one another in accordance with a resemblance that needs no contact” (Foucault, 2015, 22).

For instance, this kind of relation can be the relation in between social sciences and the design disciplines because they are not touching each other. However, they have to have a connection through knowledge. In addition to all the listed definitions and examples for *aemulatio* ,“who resemble one another completely, without its being possible for anyone to say which of them brought its similitude to the other”(Foucault, 2015, 22), As a comparison, this type of similitude ‘*aemulatio*’ does not form a chain but it can be considered as a series of concentric circles that externalize and compete with one another unlike that of the similitude, *convenientia*.

The third form of similitude is analogy which was described by Foucault as “which its threats are not the visible, substantial ones between things themselves; they need only be the more subtle resemblances of relations”(Foucault, pg.24). Analogy in other words covers both *aemulatio* and *convenientia* but it has a deeper universal meaning which not only the obvious and massive similarities but also more subtle ones that have multiple values. The best example of this type of similitude is given as such:

“Crollius's time, between apoplexy and tempests: the storm begins when the air becomes heavy and agitated, the apo-plectic attack at the moment when our thoughts become heavy and disturbed; then the clouds pile up, the belly swells, the thunder explodes and the bladder bursts; the lightning flashes and the eyes glitter with a terrible brightness, the rain falls, the mouth foams, the thunderbolt is unleashed and the spirits burst open breaches in the prose of skin; but then the sky becomes clear again, and in the sick man

reason regains ascendancy. The space occupied by analogies is really a space of radiation. Man is surrounded by it on every side; but, inversely, he transmits these resemblances back into the world from which he receives them. He is the great fulcrum of proportions – the centre upon which relations are concentrated and from which they are once again reflected” (Foucault, 2015,25-26).

Lastly, the fourth form of similitude is provided by the play of sympathies that can cross pass the enormous spaces instantaneously.

In other words;

“it can be brought into being by a simple contact, its power that sympathy is not content to spring from a single contact and speed through space; it excites the things of the world to movement and can draw even the most distant of them together” (Foucault, 2015, 26).

In addition to these definitions of sympathy, this similitude is:

“an instance of the Same so strong and so insistent that it will not rest content to be merely one of the forms of likeness; it has the dangerous power of assimilating, of rendering things identical to one another, of mingling them, of causing their individuality to disappear – and thus of rendering them foreign to what they were before” (Foucault, 2015, 26).

2.2.2 Education

The intricacy in between the disciplines also causes a merging in the education of architecture and other fields of proficiency that are related directly or indirectly. “The discipline sought to shake its claims amid a new territory by articulating its relationship to the technological, socio-political and cultural transformations of the time” (Colomina et al.). Within the changing world, the education and the lectures started to be shaped by having knowledge on other related fields or so called unrelated ones rather than having one perspective and learning one profession. According to Umberto Eco,

“The listeners’ main duty is to place him/herself in the centre of an unlimited skein of relations because of the events which do not include a sequence of the cause and effect. He/She should choose their own approaches, their own reference points and the sequences of references. He /She should make an effort for using several ratings and dimensions in terms of perspectives as much as possible, activating, duplicating and enlarging the possibilities of perception” (Eco, 2016,77).

One of the reasons why the knowledge within the education life started to change is the graduates of a one profession started to tend to do something else besides their studied profession. For instance, the graduates of architecture or landscape architecture or urban design may work on cinema, publishing, textile design and so on. This intricacy has led the academic world to reconsider the discipline borders. “Interaction between theory, practice and research, the question of hybrid knowledge made of theories and practices the importance of knowledge coming from other fields” (Ziegler,2010, 464) created double majors and lateral majors that within this article will be examined as paradisciplinary. Another intricacy within education is related with the discovery of knowledge in design rather than transmitting it which creates the concept of innovative architecture which can be defined as “creating a new spatial experience” (Aydinli and Avci, 2010, 93). Learning architecture is a non-stop process which should be based on learning by experience that includes the discovery of the necessary elements for designing one project by the help of the technological developments and the advanced research possibilities.

As an example of learning by experience, a series of workshops were held at Istanbul Technical University which covered five different topics. Firstly, fluid space was studied and was based on dropping ink into water in order to find out about the time space relation. Furthermore, sound of materials was examined which created a knowledge on materials and their qualities in terms of sound and its possibilities. Another workshop involved cinematography that was based on watching several movies and examining the concept of space within the movies. , Additionally, sound space was covered which is the examination of space through sound and lastly choreography which involved experiencing the space through dancing. The key idea was that each topic needs research involving different disciplines. “Each workshop contributing with its own way of design thinking has encouraged students to think

something differently” (Aydinli and Avci, 2010, 94). After the workshops and the research students gained the ability to look through different perspectives which created a discovery on the new forms of architectural design and design tools. The change in the education of any field, causes a change within the proficiency itself and creates an innovation which will shift the entire discipline; its images, symbols and so on. However, art is a subjective field as every person has their own perception and preferences which are hard to break. These assumptions involve tastes on beauty, reality, geni, civilization, shape, location and admiration. Despite this, most of these assumptions do not assist in helping to explain the situations of today (Berger, 1995, 11). So, people have to find another way for looking at the things around them. , The world is not an absolute objective reality as consciousness is also a factor. In order for designers to avoid being myopic, rather than focusing on only architecture, they should look at other fields to help them achieve a broader understanding of design and cities.

“The exploration of external methodologies became another aperture through which the question architecture. Methods borrowed from disciplines such as linguistics were employed, perhaps paradoxically as autochthonous tools for conceptualising, reinterpreting and redesigning architecture” (Colomina et al.).

And it is important that thinking through other disciplines, learning their possibilities and thinking in a paradiscipliner way will lead new architects to become more creative but also more consistent.

Last but not least, the change in the education of any field, causes a change within the proficiency itself and creates an innovation which will shift the entire discipline; its images, symbols and so on. However, art is a subjective field as every person has their own perception and preferences which are hard to break. When the circumstances change, the intellectual also have to change his or hers perspective. The designer should contain the knowledge for managing the current situations. The education of architecture aims to create intellectuals for the profession, to teach how one can build his or her identity as a designer in an independent way without the restrictions of locations, subjects, aesthetic, moral and so on. If the architecture is dealing with the skein then education determines the perspective how one can understand this skein. In terms of education of design fields, many of the architecture

departments, including ODTÜ, İTÜ, Bilkent and TOBB universities, combine several design disciplines under the same faculty for giving an transitive education. As an example of this paradisciplinary education TOBB University Master's Program can be given in order to explain the circumstances. It is a program of architecture however, it accepts students from different proficiencies. This is an innovative situation that is related with the knowledge gathered from any other design discipline on the other hand it is not necessarily be architecture. Another example, is Bilkent University which has a curriculum of a mixed education such as Landscape Architecture and Urban Design or Interior Architecture and Environmental Design, and these fields have a common education on their first years in Basic Design Studios and afterwards their educations intersects.

2.3 Technological Developments

The third heading can be identified as technological developments which help the designer to work with more light surfaces and to become more innovative and creative in terms of design and use of materials. They create lots of opportunities in terms of creating a topography which may become the roof of a building in its simplest way or even it makes the designer be able to do both the making and thinking part of the result product without collaborating with other disciplines. According to Anthony Vidler,

“The complex intersection of traditional perspectival thought, and its modernist distortions, with contemporary digital culture has had an accordingly complicated effect on theory. On the other hand, art historians and students of cultural studies have been drawn to reinvestigate the sources of modern vision. On the other hand, digital enthusiasts have claimed but not entirely proved, a new and uncharted era to be in the making” (Vidler, 2001, 8).

Using technological developments is based on knowing the materials and their qualities in a deeper way as well as learning how to use these programs and the natural laws. The technology enables the designers to look from a perspective that clarifies which is pragmatic and simply possible to create innovative design without

neglecting the idea of structure and the common basis of natural laws (Hensel and Menges, 2008, 19). In terms of knowing the concluded product, the computer programs enables the designer to foresee without limitations of calculations and analyses that can be considered as an innovative method. “Contemporary digital methods make possible the simulation of such processes, and thus enable to refer back to the empirical methods of previous generations” (Hensel and Menges, 2008, 25). It is possible both to learn and understand what has been made and what can be made more creative and innovative by entering such data of the possibilities of the materials and the data foresees it will turn into within a few years which may change the imagining of the architectural design. According to Peter Eisenmann, “The electronic paradigm directs a powerful challenge to architecture because it defines reality in terms of media and simulation, it values appearance over existence... this indicates: changing definitions of reality” (Nesbitt, 1996, 51). On the other hand, “technology may be the only force which still holds the scattered fragments of reality” (Baudrillard, 2014, 37). In recent years many companies and studies work on “how the technological transfer of additive manufacturing processes could be applied to construction practice and the architectural design process” and the research shows that technology enables designers to use various combined materials that even consider the differences in between scales through using intricate modifications of computer aided design (Hensel and Menges, 2008, 43). If the designer knows how to use the technology and the qualifications of materials then he/she can manage the construction part by envisioning the finished product.

“Computer aided design has become nearly universal in architectural offices because it is swift and precise... Traditionally, architects have analysed solid buildings in two ways through plan and section. Computer aided design permits many other forms of analysis, such as taking a mental journey, on screen through the buildings airflows” (Sennett, 2008, 40).

It is also evident that by using technology, some basic problems architecture faces such as thermodynamics and acoustics are solved as close as possible not only with the help of textbook principles but also with an application which calculates the data of the structure and climate and other several factors on its own. For instance, finding the movements of individuals and the population densities in urban areas with the help of technology such as cellular phones is such an example. “The

overlapping of the data captured from cellular phones on the fixed topography of the city highlights the divergence between fluid components and the static qualities of the urban landscape”(Hensel and Menges, 2008, 139).It helps the designer and sociologists to understand the places which have been used most and whether the designed areas are functioning well or not. On the other hand, in terms of designing the urban land it creates an opportunity in designing the zones strategically. By gathering real time data for territorial uses, technology makes it possible to modify the traditional systems of urban planning that can be more accurate. Last but not least, as both part of technological developments and paradisciplinary, the concept of morphogenesis would be beneficial for a designer to understand the potential of designing with a new sensitivity that is based on “an analysis which requires creativity, intelligence and instrumentality for running of integral computational design process”(Hensel and Menges, 2008, 57).

If the designer knows how to use the technology and the qualifications of materials then he/she can manage the construction part by envisioning the finished product. It is also evident that by using technology, some basic problems architecture faces such as thermodynamics and acoustics are solved as close as possible not only with the help of textbook principles but also with an application which calculates the data of the structure and climate and other several factors on its own.

3. ARCHEAOLGY OF DISCIPLINARY RELATIONS

3.1 Antiquity

During Antiquity, there were several architects whose philosophies towards architecture have a lasting significance. One of them is Vitruvius. His “Ten Books on Architecture” is still a guide for architects and designers. Within these books, besides his own designs, Vitruvius explains how an architect should be educated and how he/she should design. When looking at the past, the curriculum had a purpose to raise leaders in society that is called “enkyklios paideia” which is a type of education in general studies for strengthening the assumption before specializing in a certain field (Vitruvius, 1999, 7). The themes of these ten books are the ingredients of architecture which includes the entire built and mechanical environment, the complexity of art and the importance of social humanity. Furthermore, the requirements of proper practice, depends on the synthetic mastery of theoretical and practical knowledge (Vitruvius, 1999, 13). In order to understand the beliefs of Vitruvius towards architecture, his definitions should be considered. First, he defines architecture as “a very complex art and needs the control of rich tradition, but also must advance through innovative personal talent and intelligent application” (Vitruvius, 1999, 18). Afterwards, he continues stating that “a liberal artist simply the assertion that the cumulative wisdom of liberal culture is the best way of providing architecture with that kind of flexible, firm control and judicious richness of invention” (Vitruvius, 1999, 18). These definitions of architecture are still the same, however with blurriness in all the design fields in regard to who will do what. In light of these definitions, the architect is the one who has the power to both understand and change the liberal culture by inventing new things related to the needs of citizens. Changing and organizing the life among the city is vital and can be met through designing.

Being an architect has its own responsibilities. The expertise of architecture is based on the judgements he/she makes and is fed by the knowledge of many disciplines and various sorts of knowledge. Architecture is born with both practicing and reasoning.

The part of practice can be considered as constant, a repeated action of hands which makes the design become more beautiful day by day, while the part of reasoning is where the architect should explain the proportions of completed work skillfully and systematically (Vitruvius, 1999, 21). This has similar basis with the thinking part and making part of architecture. The thinking part requires reasoning and a high knowledge of approximately every discipline, however the part of making requires an outer help of the one specialized person that has practiced the same thing several times.

Moreover, “the architect ought to have a native talent and be amenable to learning the disciplines of the profession” (Vitruvius, 1999, 22). First, the architect should know the letters in order to read and understand the previous works of other professionals. Furthermore, he/she should know how to be a draftsman that can make illustrations of his/her proposals more easily. Another related field is geometry, will be useful while the techniques of compass and rule that enables the architect to define levels and lines in a more sufficient way. Likewise, an architect should understand optics while designing windows and their locations. Then with the help of arithmetic one can resolve the principles of geometry, measurement, development and expenses of buildings. In addition, the architect should also understand what philosophy recommends to avoid arrogance and greed and to become more fair, tolerant and trustworthy and the physiology for understanding the natural applications of it such as aqueducts. He/she should know about music which will help him/her on the mathematical relations and canonical relations. Additionally, the architect should also know about the climate, which makes an area have the possibility for dwelling. The law in terms of governing the things within buildings that includes walls, rain gutters, drains, lighting and the other supplies is also essential for an architect to be familiar with. Lastly, the architect should know about astronomy in order to define the facades, the principles of sundial and orientation (Vitruvius, 1999, 22-23). In light of the necessities of becoming an architect or a designer “perhaps it will seem incredible to those unfamiliar with the profession that human nature could learn so great a number of disciplines thoroughly and still retain the memory of them” (Vitruvius, 1999, 23). As a conclusion, one individual can manage all, one individual hosts both the theoretical and practical knowledge. So, in

terms of the intellectual position of the architect/designer, he or she can be considered as the wise one within this era.

3.2 Renaissance

During Renaissance, there was an intellectual movement which is based on using the money of the citizens for reviving the interest in arts, philosophy, literature and so on. “The Renaissance was the result of a profound intellectual movement, whose roots may be traced far back into the Middle Ages, and which manifested itself first in Italy simply because there the conditions were most propitious” (Hamlin, 1896, 275). Within this era a concept: humanism was emerged. “The essence of this far reaching movement was the protest of the individual reason against the trammels of external and arbitrary authority—a protest which found its earliest organized expression in the Humanists” (Hamlin, 1896, 275). Humanists announced the superiority of the works of human beings in terms of grammar and rhetoric due to the improvement of one’s skills on communication, in terms of history, poetry and moral philosophy due to the increase of one’s thoughts and actions (Schiffman, 2011, 142). The concept of humanism in other words relates with the knowledge gathered under one person’s consideration. “It was an era defined by a wealth of remarkably gifted and creative humanists, sculptors, painters, architects, engineers and poets” (Martin, 2004, 5). It is based on improving the intellectual potential of the artist, designer or the architect. So, “The history of Italian architecture, becomes the history of the achievements of individual artists” (Hamlin, 1896, 277).

Due to the changes in individuality made by taking references from past, created changes in the field of architecture and arts and in the field of education which forces one to learn different disciplines in order to keep up the evolving circumstances. “Centers of learning with universities or court academies combed the literary legacy of the ancient world, for a great range of knowledge, from the technological to the philosophical” (Thomson, 1993, 63). One of the well-known architects of that era Leonardo da Vinci also improved himself in many different fields such as dynamics, anatomy, geometry, optics and so on. “The architecture of Renaissance can be considered as the most recent cycle of experiment that can be judged historically as a concluded whole” (Benevolo, 2002, 3). So, his self-education started with the scientific studies such as light, vision, perspective, sensory perception, geological

and botanical fields, flight of birds and urban designs in 1484. Then, continued with architectural designs in 1487, studies of muscles, skulls and nervous systems in 1489, mathematics, technical drawings, human proportions and design of flying machines in 1490, geometry and optics in 1491. Furthermore, he studied urban design in terms of drawing a map, designing canals and draining marshes in 1502, hydraulic works in 1504, design of flying machines in 1505. Lastly, he continued his studies with extensive botanical knowledge, geometry of transformations, mechanical and optical design, he also started to give consults on architectural and engineering projects in 1514. (Capra, 2013, 326-335). In the lead of the self-education of Leonardo da Vinci, a Renaissance man should host the knowledge of every needed discipline under his or her constitution. According to Manfredo Tafuri, “Our focus should not be confined to a single phenomenon” (Tafuri, 2006, xxvii). In terms of the intellectual position due to the knowledge of the architects, artists and designers should be multi-focal, then, one should improve their abilities and skills in order to be successful.

“Architecture was included the certain classification of human activities, which distinguished the differing attributes of the techniques considered as belonging to a common activity: art which covered architecture, sculpture and the other denominations derived from the institutional groupings which emerged during the course of this period” (Benevolo, 2002, 1).

Moreover, a significant progress occurred during Renaissance is the separation of arts and crafts, the making and thinking part of design fields. This progress can be considered as the start of the specialization. “The division emerged in the Renaissance ... Still later the split between art and craft was reflected in the changes in art education from craft based workshops to academies at precisely the time eighteenth century” (Robinson, 2015, 236).

3.3 Modernity

Many architects, designers and historians made different definitions for this field. The first considered definition is that, design is an activity that is related with the process of thinking and creating things in relation to the requests of people that includes patterns and has a value. The image of a designer should be about the building up a structure, pattern or system within a situation (Gregory, 1966, 3-4). “Design is considered as the process of selectively applying the total spectrum of science and technology to the attainment of an end result which serves a valuable purpose” (Gregory, 1966, 11). Another perspective is that design is “Producing inner images is a natural process common to everyone. It is part of thinking. Associative, wild, free, ordered and systematic thinking in images, in architectural, spatial, colorful and sensuous pictures” (Zumthor, 2006, 68-69). Zumthor also adds that defining the task of the designer is really hard to explain because “it is related to artistry and achievement, intuition and craftsmanship. But also to commitment, authenticity and a deep interest in subject matter” (Zumthor, 2006, 78). Moreover, “It is the epistemology of design that has inherited the task of developing the logic of creativity, hypothesis innovation or invention that has proved so elusive to the philosophers of science” (Cross, 2006, 51). Furthermore, “The natural sciences are concerned with how things are, design on the other hand is concerned with how things ought to be” (Cross, 2006, 51). Last but not least, according to Christopher Alexander, “Scientists try to identify the opponents of existing structures, designers try to shape the components of new structures” (Cross, 2006, 51). In light of world renowned designers’ definitions of design, it is important for designers to make their own definition. Design is an arrangement of an environment that should be created for making life easier for yourself and for your neighborhood. Nowadays, design and design fields are considered as a skein that needs to be managed as it is. While managing design, it is important that taking human satisfaction into consideration is vital because it shows the success of the design in terms of use, construction and so on. (Gregory, 1966, 7). Another issue which was mentioned above by the world-renowned designers is they also make comparisons with science and the discussions on design whether it is a branch of science or not still continues. One of these comparisons is that “Science is analytic, design is constructive” (Gregory, 1966, 6). This comparison is important to determine the design process possibilities that may

lead designers. For instance, a significant example which combines science and art is a school of architecture called Sciearc. One of the objectives of the school is “the emphasis on a pedagogy that seeks a synthesis in the education of the architect by employing, different modes of thinking across different fields of knowledge” (SCI-arc). The knowledge of design comes from the human experience during his or her career in practice or personal background. In order to widen his or her knowledge on design he or she may also learn from the works of other people. As a conclusion, the designer builds a scene of the pattern of behaviour during design in his or her mind. Other people do the same thing so the experience can be generalized and it is possible to pass it from one person to another (Gregory, 1966, 8). If there can be a system or a guideline for design then it is same for all types of design fields.

After listing some key definitions for design, it is necessary to list some definitions of all design fields. First of all, definitions or restrictions and necessities of architecture should be discussed. Starting from the historical definition of architecture, it is basically:

“a profession concerned with the creation of order out of chaos, a respect for organization, the manipulation of geometry and the creation of a work in which aesthetics plays a far greater role than anything likely to be found in a humdrum building” (Curl, 2006, 40).

In addition to this definition one of the most famous architects, Vitruvius believed architecture “derives from order, arrangement, eurythmy, symmetry, propriety and economy” (Curl, 2006, 40). Another perspective towards architecture is from Ludwig Wittgenstein who claims that “Architecture is a gesture” that in other words, as every movement of human body cannot be defined as gestures, every building cannot also be described as architecture. However, within today’s conditions, “Our times of change and transition do not permit big gestures” (Zumthor, 2006, 24). “Buildings do not turn into architecture because they are big, or because they are expensive but because they have some sort of cultural content-some sort of meaning” (Ballantyne, 2002, 10). In a contrary way, architecture “included everything which had been built and so his history of architecture became ‘the study of what we built’ “(Ballantyne, 2002, 11). Another perspective is from Frank Lloyd Wright, nowadays architecture needs the integrity which is also common for the life. A human being and a building is very similar in terms of integrity that creates the deepest quality. If you succeed to

design your building with integrity then, you will also succeed in helping ‘the psyche’ that creates the basis of our democratic society. As a result, after you stand for integrity you will achieve to create a relationship in between opponent sides. (Pallasmaa, 2016, 89). On the other hand, another definition which is more related with the content of architecture has been made by Peter Zumthor that states “Architecture is always faced with the challenge of developing a whole out of innumerable details, out of various functions and forms, materials and dimensions. The architects must look for rational constructions and forms of edges and joints, for the points where surfaces intersect and different materials meet” (Zumthor, 2006, 15). The most important duty of architecture is to embody and constitute our existence in the world that creates existential metaphors. Architecture reflects and materializes and eternalizes the ideas and images of the ideal life (Pallasmaa, 2016, 88). However, the architecture nowadays seems to become in between science and form.

“In the Western sense of the arrangement of knowledge, the concepts used in education, art, architecture and etc., separates these two zones from each other. In one side, there is the field of scientific knowledge, texts, programs and the logos and its authority, in other side there is the field of people who knows how to shape and know how to work with the materials. In this sense architecture is in between these two, in between thoughts and materials” (Portzamparc and Sollers, 2014, 33).

Another profession related with design and architecture is landscape architecture that was first mentioned in 1858 by Frederick Law Olmsted and Cahert Vaux. They invented the name to declare their motive to move towards the total understanding of landscape which is similar to the same relation that an architect has towards a building, with fundamental significance on design (Newton, xxi). One of the definitions of landscape architecture has been made by Norman Newton and entails, “arranging land together with the spaces and objects upon it, for safe, efficient, healthful, pleasant human use” (Newton, 1971, xxi). Another point of view towards landscape architecture is from Elizabeth Meyer who defines it as an “autonomous design practice expressing its own language of space and form” (Swaffield, 2002, 1). But on the other hand, the most common definition of landscape architecture has been made by the Oxford dictionary of Architecture and Landscape Architecture

which describes the profession as “The design of gardens, parks, campuses, cemeteries etc, to provide places that can be enjoyed both to walk with and to view from a distance” (Curl, 2006, 428).

One of the other professions related with design and architecture is city planning. City planning seems to be a broader aspect in design with more complex thinking. However, it is still important to understand the term, ‘planning’. According to Peter Hall, “planning as a general activity is the making of an orderly sequence of action that will lead to the achievement of a stated goal or goals” (Hall and Jones, 2011, 3). Afterwards, another significant detail is to understand the job definitions of a city planner or urban planner. Urban planning, in a simple way, can be defined as providing a spatial structure of activities that considers spatial and geographical conditions, in other words it is more suitable to plan a pattern rather than using an existing one without planning which may lead chaos (Hall and Jones, 2011, 3). Since the Neolithic ages, regional planning has been done but its first emergence as a new understanding and its first institutionalization can be attributed to the end of 19th century (Ersoy, 2012, 24). Furthermore, “the most important job of city planning was the comprehensive organization of the physical environment in the form of a master or general urban-land-use plan” (Rodwin et al, 1981, 267). In other words, “The common goal of city planners is to participate the reproduction process. By fulfilling this task, planners have the power in production, management and maintenance of the built environment. This power also gives the planners, the authority for creating a stabilization, blocking the struggle between people who have different aspects and it also provides the planners the possibility to make interventions through integration and restraint”(Ersoy, 2012, 73).

Moreover, another profession is interior architecture which is one of the design fields. Its origins are rooted in the fifteenth century and entails the “inside as divided from outside and to describe the spiritual and inner nature of the soul” (Rice, 2007,2). Afterwards, during the eighteenth century, first interiority is used to label the inner character, personal opinion and domestic transactions of a state but then it is defined as the feeling of territory. Later on, in the nineteenth century, which is the date of the emergence of interior in the meaning of today’s understanding that is “the inside of a building or room especially in reference to the artistic effect, also a picture or representation of the inside of a building or room” (Rice, 2007, 2). In other

words, it is a planned and organized art of colors and furniture and etc. in a room or in a building (Rice, 2007, 2). Another perspective towards interior is from Heidegger “the interior emerges as one of its mechanisms enacting modern norms of domesticity that are often confused with its timeless and essential features” (Rice, 2007, 5). In light of the definitions of interior architecture, to sum up, it is a branch of architecture that is related with the inside of a building or a room which involves organizing of the light, color and furniture and other elements such as walls, windows, carpets, etc. It has a potential of reflecting a personal subjectivity and creating territories.

Last but not least, another design field is industrial design which also emerged in the mid-nineteenth century and is considered as a work of art. The first aim of the industrial designer is to “assert their authoritative understanding of the cordial aesthetic principles of proper line, proportion, color- harmony and stylistic unity” (Doorden, 2000, 90). In other words, “the analysis and presentation of objects are addressed through a study of geometry, perspective and proportion” (Hauffe, 1998, 13). On the other hand, the general definition of industrial design is “it extends from articles of daily use, such as furniture, household appliances, household products and clothing to the products of the machine automotive and airplane industries” (Hauffe,1998, 14). As a branch of design, industrial design is the design of more specific elements that are used within cities, houses and they also function to make people’s life easier while concerning with the aesthetic apprehensions.

3.4 Post-Modernity

While describing the design fields, we always mention the two sides, two or more different perspectives in order to understand the boundaries in between them in a more clear way; “Things and proposal take place on the two sides of a boundary which are represented by meaning rather than a radical duality. This boundary, does not mix them up or combine them, it is the being jointed of the differences” (Deleuze, 2015, 42). During Modernity, the disciplines of design started to separate, however, this separation caused the knowledge and the proficiency of each discipline to work together. So, there is an emergence of collaboration. This collaboration has

been named differently over and over again as multi, cross, trans- and inter-disciplinarity.

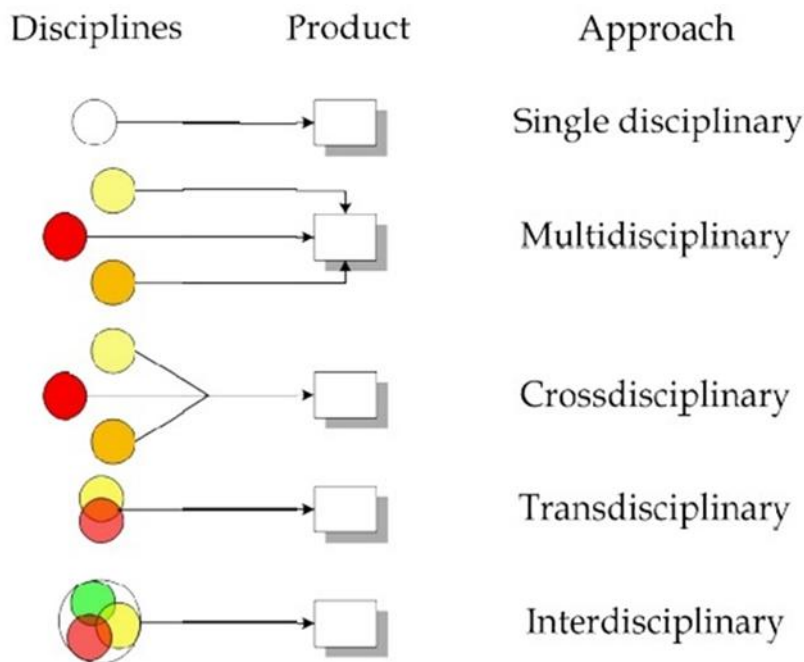


Figure 3.1: Disciplinary typology (Petișor, 2013, 44).

Multi- disciplinarity, is when the concepts or methods from more disciplines are working together. Cross- disciplinarity is in addition to the multi disciplinarity: concepts and methods are working together and there occurs coordination. Trans- disciplinarity, if the borders of disciplines are also crossed, joint collaboration between scientist and practitioners in the resolution of problem raised from outside the scientific context. The last one is the inter disciplinarity, if crossing the borders leads to combining disciplines, where different disciplines keep their autonomy when solving a given problem.(Petișor, 2013, 43-44). However these disciplinarity types started to become inadequate nowadays.

“Much of the discussion around inter- and trans-disciplinarity deals with the notion that knowledge is or should be co-produced between academics and other groups. But the whole process of cooperatively creating new ways of thinking and doing are dependent on several aspects that are often left out of the ways inter- and trans-disciplinarity are talked about in the mainstream. For example, projects involving co-produced knowledge should invoke relations that are reciprocal and have high levels of trust between the different groups involved” (Toomey et al., 2015, 2).

There is an emergence of a new way of thinking in terms of considering design disciplines. Within the context of today's disciplinary world, there is not a necessity towards collaboration. One person can host the knowledge of several disciplines under his or herself. When the designer hosts the knowledge of different disciplines, he or she becomes the digital craftsman that can work on the design until it becomes as perfect as possible. However, nowadays the necessity of working together gives its place to working as individuals with the lead of developed technology. “Establishing broader understanding of disciplinary interactions from a scholarly perspective provides a valuable context with which to understand past patterns and project future directions” (Kullman, 2016, 32). In light of these design discipline explanations, it is impossible to understand today's intricate world of design disciplines so there should be more concepts, which within this article will be examined as ‘paradisciplinarity’.

“In the twenty first century, the increasing convergence of design based disciplines is an advancing paradigm across practice, research and education” (Kullman, 2016, 32). This changing process occurs from the interconnection in between digital media and the influence of paradisciplinary approaches which creates similarities and an intricacy across scale and fields. “Within this context, the spatial design professional disciplines also appear to be converging into an expanded field as fixed disciplinary boundaries dissolve (Kullman, 2016, 32).



4. PARADISCIPLINARITY

After examining the design fields in terms of their definitions and borders, we can say that all of these fields become intermingled within each other. So in order to read this skein, as designers we come up with several concepts. These concepts and the collaborative work of these professions do not cover enough to read today's cities and conditions. For instance, the term urban design describes collaboration in between urban studies and design studies, however, its relationship with other things cannot be identified with it. If we consider art as a science which was discussed above, one individual should have knowledge about both things which can be described as paradisciplinary. On the other hand, the development in technology and the digital field also widens our professional identity as designers in a paradisciplinary way.

Paradisciplinary means, “unlike inter-, multi-, cross- and transdisciplinary collaborations, which define various types of interactions among a group of individuals working together on a common project. Paradisciplinary applies to a single individual practicing two disciplines at the same time” (Lapointe, 2012, 1). In other words, paradisciplinary is a junction of different disciplines. (Shawna and O’Sullivan, 2016, 28). The basic aim of this research is to understand the problem of re-reading the intermingled cities and design fields because all the qualities required by a computer engineer, an architect and a biologist and so on under one individual’s knowledge will be more successful. “Paradisciplinary can be considered as counter-positioning disciplines by comparing formal aspects of disciplines... in order to open up and/or widen relations between individual areas of knowledge production” (Shawna and O’Sullivan, 2016, 28). The argument is that is it possible to work on each of the fields equally? That is possible in several conditions such as building the theoretical and conceptual part on your own that lies in the process of experimentation. There is a definition of the scientific experiments as “the art of obtaining rigorous and well-defined experiments” (Lapointe, 2012, 1) On the other hand, an artist defines experimentation in art as “the verification of testing of a

principle". When these two definitions of experimentation are combined the result is obvious that both of them can be used for either (Lapointe, 2012, 1).

In life, one often encounters duality. While talking about something, people always mention two different sides for instance it is also mentioned above that the situation of paradisciplinarity has both sides of being parallel and symmetric at the same time. These sides within this paper are related with language and concepts, architecture and other design fields, text and building and art and science. First duality is between the reasons and results, the substantial things and non-solid events. However the result-events cannot exist besides the statements expresses them, the duality turns into something that is in between the things and statements, solid and language (Deleuze,2015, 41). This intermingled way of duality is related with the concepts of language and the conceptualization of the things around us. The mechanism of substance is taken to the surface of language, with this challenge, substances are pulled up from their old depths even the risk of endangering whole language (Deleuze, 2015, 41). Within this research, in a contrary way, the dualities create a scene of the interaction of two disciplines which gives us the situation of being interdisciplinary however today's cities cannot be defined with interdisciplinary and the concept of paradisciplinarity relies on more things than two. There is a blurriness of how many things are involved, which discipline and where. In terms of paradisciplinarity, there should be an opening which cannot be defined with dualities. While looking the paradisciplinarity concept, the knowledge makes us to go back the times of when one individual can manage all. Especially, nowadays the digital era makes it possible that even takes away the collaboration on making process.

5. INTELLECTUAL POSITION

While dealing the disciplines as a whole it is important to understand the intellectual position of the designer.

“We live in a social world that converts all of us into fragments of people with particular attachments, skills and abilities integrated into those powerful and dynamic structures that we call a mode of production. Our positionality or situatedness in a relation to that is a social construct in exactly the same way that the mode of production is a social creation. This positionality defines who or what we are. And where we see it from within that process provides much of the grist for our consciousness or our imaginary” (Harvey, 2000, 236).

While building a character as a designer it is important to consider the changing circumstances and realize the position of the one who is looking towards the situation. As a result, the designer’s main concern should be designing his or her identity rather than dealing with the city. If being a designer is dealing with a skein, then the intellectual position of a designer determines how to evaluate the relation within this skein.

That’s why within each and every era, the intellectual position of designer changes due to adopt the circumstances. First, within the Antiquity, the designer is the one who knows everything: who is the philosopher, psychologist, meteorologist, physicist, astrology expert in other words the wise one. Afterwards, there is Renaissance, that one person understands the same fields however the making and thinking part of design has separated. Later on, within the modernity there is a separation of expertise that created designers to focus on one discipline and learn one of them throughly.



Figure 5.1: Intellectual position of designers

Each and every era changed the position of the designer in terms of intellectuality. There are lots of external factors such as the necessities, the technological developments and so on but the most significant factor is the education that the designer forms his or her identity. The perspective of the designer should always been updated day by day with the changing circumstances yet there also should be the basic qualities to consider with the changing and developing intricate world.

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